

PAMELA J. WILLIAMS

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EDUCATION **Rice University, Houston, TX**

Ph.D. in Computational and Applied Mathematics, December 1997.

M.A. in Computational and Applied Mathematics, May 1997.

Thesis Topic: "Effective Finite Termination Procedures in Interior-Point
Methods for Linear Programming"

Thesis Advisors: Dr. Richard Tapia and Dr. Amr El-Bakry

University of Kentucky, Lexington, KY

B.S. in Mathematics, May 1991.

RESEARCH INTERESTS Linear and Nonlinear Optimization, Data Fusion, Data Mining, and
Pattern Recognition

EXPERIENCE **Sandia National Laboratories, Livermore CA 2000-present**

Computational Sciences and Mathematics Research Department,
Senior Member of Technical Staff

- Principal Investigator for Pattern Recognition Laboratory Directed Research and Development project
- Code developer for the DAKOTA (Design Analysis Toolkit for Optimization and Terascale Applications) toolkit
- Developer for OPT++, a nonlinear optimization toolkit
- Research in nonlinear optimization methods for simulation-based optimization problems.

Sandia National Laboratories, Livermore CA 1998- 2000

Computational Sciences and Mathematics Research Department,
Limited Term Technical Staff

- Research in optimization methods to improve transit system operations.
- Development of a train control system simulator.

AT&T Bell Laboratories, Holmdel, NJ (1993, 1991) Columbus, OH 1988-1990

Performance Analysis Group, Member of Technical Staff, Summer 1993

Performance Optimization Group, Senior Technical Associate, Summer 1991

Signaling Technology Performance Group, Technical Associate, Summer 1990

CNI and IMS Performance Group, Technical Associate, Summer 1989

Network Control Point Project and Process Management Group,
Technical Associate, Summer 1988

EXPERIENCE
(CONT'D)

Rice University, Houston, TX

Post-doctoral Research Associate, Summer 1998
Graduate Research Assistant, 1992 - 1997

PRESENTATIONS

“Optimization and the Classification Problem,” INFORMS Annual Meeting. Denver, CO. October 24, 2004.

“Nonlinear Interior-Point Methods for Simulation-Based Optimization Problems,” Statistical and Applied Mathematical Sciences Institute Workshop on Simulation and Optimization (invited talk). Research Triangle Park, NC. April 30, 2003.

“Using Indicators in Finite Termination Procedures,” National Institute of Standards and Technology (invited talk). Gaithersburg, MD. August 1, 2002.

“Minimizing Interference in a Train Control System,” Industrial Mathematics Modeling Workshop for Graduate Students (contributed talk). Raleigh, NC. July 22, 2002.

“Building a Constrained Optimization Library from Existing Bricks,” ExxonMobil Upstream Research Company (invited talk). Houston, TX. October 17, 2001

“How to Get a Smoother Ride on BART,” Department of Industrial Engineering, Texas A&M University (invited talk). College Station, TX. April 23, 2001.

“Advanced Automatic Train Control Optimization,” SIAM Annual Meeting (contributed talk). Rio Grande, Puerto Rico. July 10-14, 2000.

“Advanced Automatic Train Control Optimization,” Third Biennial Tri-Laboratory Engineering Conference on Modeling and Simulation (contributed talk). Livermore, CA. November 1999.

“Weights or Indicators: Which Plays the Greater Role in Finite Termination Procedures?,” Sixth SIAM Conference on Optimization (contributed talk). Atlanta, GA. May 1999.

“Optimal Face Identification Methods and Bounded Variable Linear Programs,” Joint Meeting of American Mathematical Association and American Mathematical Session (invited talk). San Antonio, TX. January 1999.

“New Directions in Finite Termination Techniques,” Institute for Operations Research and the Management Sciences (invited talk). Dallas, TX. October 1997.

“On Effective Finite Termination Techniques Within Interior-Point Methods for Linear Programming,” Society for Industrial and Applied Mathematics Annual Meeting (special session). Charlotte, NC. October 1995.

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PUBLICATIONS

“*OPT++: An Object-Oriented Toolkit for Nonlinear Optimization*,” (with J.C. Meza, R.A. Oliva, and P.D. Hough), submitted to *ACM Transactions on Mathematical Software*.

“*Using Indicators in Finite Termination Procedures*,” (with A. S. El-Bakry and R. A. Tapia), *Optimization Methods and Software*, Vol. 18, No. 1, pp 39-52, 2003.

“*Train Control Optimization*,” (with S. P. Gordon), *SIAG/OPT Views and News: A Forum for the SIAM Activity Group in Optimization*, ed. J. C. Meza, Vol. 10, No. 1, February 1999.

“*Computing an Exact Solution in Interior-Point Methods for Linear Programming*,” (with A.S. El-Bakry and R. A. Tapia) In N. Dean, C. M. McZeal, and P.J. Williams, eds., *African-Americans in Mathematics II: Proceedings of the Fourth Conference for African-American Researchers in the Mathematical Sciences*.

“*Effective Finite Termination Procedures in Interior-Point Methods for Linear Programming*,” Ph.D. thesis, Department of Computational and Applied Mathematics, Rice University, Houston, TX. 1997.

**COMPUTER
SKILLS**

Languages: C++, Java, FORTRAN, AWK

Operating Systems: LINUX, UNIX, Solaris, OSF, Windows 95/98/NT

Software: Matlab, Microsoft Office Suite

HONORS

AT&T Labs Cooperative Research Fellowship 1991-1998

Outstanding Young Women of America 1997

Phi Beta Kappa

Pi Mu Epsilon, Mathematics Honorary

Omicron Delta Kappa, Leadership Honorary

ACTIVITIES

Association for Computing Machinery

Society for Industrial and Applied Mathematics

National Association of Mathematicians

REFERENCES

Available upon request.